

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

UNITED STATES OF AMERICA,)
)
Plaintiff,)
)
ENVIRONMENTAL DEFENSE,)
NORTH CAROLINA SIERRA CLUB,)
and NORTH CAROLINA PUBLIC)
INTEREST RESEARCH GROUP,)
)
Plaintiff-Intervenors,)
)
v.) 1:00CV1262
)
DUKE ENERGY CORPORATION,)
)
Defendant.)

MEMORANDUM OPINION AND ORDER

OSTEEN, JR., District Judge

Currently pending and ripe for ruling is Plaintiff's Motion for Summary Judgment on All Remaining Claims (the "Plant Modernization Program" Claims). (Doc. 434.) For the reasons set out below, this court will grant the motion in part and deny it in part.

I. STANDARD OF REVIEW

Summary judgment should be granted if, even taking all the evidence in the light most favorable to the non-moving party, Zanodnick v. Int'l Bus. Machs. Corp., 135 F.3d 911, 913 (4th Cir. 1997), "the movant shows that there is no genuine dispute

as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). Material facts are those that "might affect the outcome of the suit under the governing law" Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). A "genuine dispute" exists "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." Id.

II. PROCEDURAL POSTURE¹

This case, now in its fourteenth year of litigation, is a civil action brought against Duke Energy ("Duke") by the United States pursuant to Sections 113(b) and 167 of the Clean Air Act ["CAA"], 42 U.S.C. §§ 7413(b)(2) and 7477. (Complaint ("Compl.") (Doc. 1) ¶ 1.) Plaintiff seeks injunctive relief and the assessment of civil penalties for violations of the Prevention of Significant Deterioration ("PSD") provisions of the CAA, 42 U.S.C. §§ 7470-7492. (Id.) Plaintiff's complaint alleges that Duke violated the PSD provisions with regard to a number of

¹ Aside from the facts listed below, this court also adopts the factual background set out in its November 6, 2013 Memorandum Opinion and Order addressing Defendant's motions in limine and motion for summary judgment. ("Nov. 6 Mem. Op." (Doc. 462) at 2-11.)

coal-fired power plants by placing the plants² in Extended Cold Shutdown ("ECS"), making modifications to those plants pursuant to Duke's Plant Modernization Program ("PMP"), and then restarting the plants without obtaining the permits required by the CAA. (Id. at 1-2.) Thirteen plants remain at issue in the case.

III. STATUTORY SCHEME

Plaintiff argues that the changes Duke made pursuant to its PMP are modifications requiring permits under the PSD provisions. Resolution of this argument requires this court to first elaborate on the relevant statutes and regulations.

A. The PSD Provisions of the CAA

In 1977, Congress amended the CAA to add the PSD provisions, which were designed to keep relatively unpolluted areas from deteriorating to the minimum levels permitted by the National Ambient Air Quality Standards. 42 U.S.C. § 7475. The provisions require operators of statutorily-defined sources of air pollution to obtain a permit from the EPA before they either construct or modify a polluting facility. 42 U.S.C. § 7475(a). Plaintiff does not allege that Duke constructed any new plants

² Technically, Plaintiff's complaint concerns individual power-generating "units," which may or may not comprise separate power "plants" - i.e., some units are actually part of the same plant. This order uses the terms interchangeably.

in violation of this statute. Rather, Plaintiff alleges that Duke unlawfully modified its preexisting plants without receiving the necessary permits. (Compl. (Doc. 1) ¶ 1.)

B. "Modification"

The PSD provisions of the CAA define "modification" as "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." 42 U.S.C. § 7411(a)(4). The 1980 regulations limited PSD review to "major" modifications, defined as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the [CAA]." 40 C.F.R. § 51.166(b)(2)(i). Thus, a party is only required to obtain a permit if both elements are present: (1) a physical or operational change, and (2) a resulting significant net emissions increase.

In its motion, Plaintiff has asked the court to grant summary judgment on both issues. The resolution of each issue requires this court to determine a multitude of sub-issues, each addressed in detail below.

IV. PHYSICAL OR OPERATIONAL CHANGE

Plaintiff argues that Duke made both physical and operational changes via the PMP and therefore "modified" its plants under either definition. (Pl.'s Br. in Supp. of Mot. for Summ. J. ("Pl.'s Br.") (Doc. 435) at 13.)³ This court will address both theories in turn.

A. Physical Change

1. In General

The regulations do not provide an affirmative definition of "physical change," so courts have applied a broad, common sense definition. See, e.g., Wisconsin Elec. Power Co. v. Reilly ("WEPCo"), 893 F.2d 901, 908 (7th Cir. 1990) ("'[A]ny physical change' means precisely that.") (internal citations omitted). Here, it is clear that the PMP meets that general definition, since the program required the replacement and alteration of several physical components within the plants, which "result[ed] in an altered plant." See id.

However, the regulations do carve out a few exceptions from the broad definition, one of which is any change fairly characterized as "[r]outine maintenance, repair, and

³ All citations in this Memorandum Opinion and Order to documents filed with the court refer to the page numbers located at the bottom right-hand corner of the documents as they appear on CM/ECF.

replacement" ("RMRR"). 40 C.F.R. § 51.166(b) (2) (iii) (a) (1987). Changes in this category do not trigger the PSD permitting requirement. Duke argues that there is a genuine issue of material fact that its PMP changes fall under the RMRR exception. (See Duke's Resp. in Opp'n to Pl.'s Mot. for Summ. J. ("Duke's Resp.") (Doc. 438) at 25-29.) Plaintiff argues otherwise. (See Pl.'s Br. (Doc. 435) at 18-23.)

2. **RMRR**

Although this court must construe all evidence in the light most favorable to Duke for purposes of this summary judgment motion, Duke bears the burden of proof on the RMRR issue. United States v. Duke Energy Corp. ("Duke IV"), No. 1:00CV1262, 2010 WL 3023517, at *8 (M.D.N.C. July 28, 2010) ("Since Duke Energy seeks to benefit from the RMRR exception, Duke Energy carries the burden to show that the physical changes that took place at its plants were indeed routine maintenance, replacement, or repair."). Ultimately, the question of whether the changes were "routine" within the meaning of the RMRR exception is a question of law for the court. See United States v. Cinergy Corp., 495 F. Supp. 2d 909, 931-32 (S.D. Ind. 2007). The conclusions of the parties' experts are not dispositive, but the expert reports and other affidavits are relevant to this court's determination of

whether a trial is necessary to determine the particulars of the PMP alterations.

The multi-factor WEPCo test guides this court's analysis. See Duke IV, 2010 WL 3023517, at *3-4, 7 (confirming that the WEPCo analysis is appropriate and "entitled to deference"). WEPCo directs courts to measure a modification's (1) nature and extent, (2) purpose, (3) frequency, and (4) cost. WEPCo, 893 F.2d at 910-11; see also United States v. Duke Energy Corp. ("Duke I"), 278 F. Supp. 2d 619, 638 (M.D.N.C. 2003). The parties previously disputed whether the point of reference for applying the WEPCo factors should be the particular unit at issue, or all the units in the industry as a whole. See Duke IV, 2010 WL 3023517, at *3. Duke IV forged a compromise between the parties' contentions, finding that the court should "evaluate[] [the WEPCo factors] with reference to the industry" but also "make a fact intensive, 'common sense' evaluation." Id. at *7. The court elaborated:

This means that the Court will not forego any consideration of what occurs at individual units and look solely at industry practice to determine whether a project is RMRR. Instead, "the Court will consider all of the WEPCO factors, including frequency, taking into consideration the work conducted at the particular [Duke Energy] unit, the work conducted by others in the industry, and the work conducted at other individual units within the industry."

Id. (quoting United States v. E. Ky. Power Coop., Inc., 498 F. Supp. 2d 976, 993-94 (E.D. Ky. 2007); see also Cinergy Corp., 495 F. Supp. 2d at 930-31. This court adopts Duke IV's statement of the proper application of the WEPCo test.

a. Context of the WEPCo Factors

The Wisconsin Electric Power Company ("WEPCo") realized in 1983 that the performance of several of its aging power plants - which had been constructed between 1935 and 1950 - was declining. WEPCo, 893 F.2d at 905. WEPCo concluded "that extensive renovation of the five units . . . is needed if operation of the plant is to be continued." Id. (internal citation and quotation marks omitted). Nearly all of the plants had either "serious cracking" in their steam drums or "[a]ir heater deterioration" preventing them from operating at full capacity. The utility even had to shut one unit down because of the risk of "catastrophic failure." Id. at 905-06.

To deal with these problems, WEPCo developed a "life extension" program designed "to allow the . . . units to operate beyond their currently planned retirement dates . . . [and to] render the plant[s] capable of generating at [their] designed capacity until year 2010." Id. at 906 (internal citation and quotation marks omitted). Aside from replacement of the aforementioned steam drums and air heaters, the rehabilitation

program included "repair and replacement of the turbine-generators, boilers, mechanical and electrical auxiliaries and the common plant support facilities." Id. WEPCo repaired each of the five units over four years, "taking [them] successively out of service for nine-month periods." Id. at 908.

b. Application of the WEPCo Factors to the Current Case

Having thoroughly examined the record and the parties' briefing in light of Duke IV's directive to "make a fact intensive, 'common sense' evaluation" of the PMP, Duke IV, 2010 WL 3023517, at *7, this court finds that sufficient factual disputes exist to deny Plaintiff's motion for summary judgment on the question of physical change. Therefore, that issue will be decided at trial for each of the PMP units.

Plaintiff is adamant that Duke's PMP sufficiently resembles WEPCo's life extension project to warrant a grant of summary judgment. Plaintiff argues that the "magnitude" of the PMP as well as the "downtime required to implement [it]" demands the conclusion that the alterations were not routine. (Pl.'s Br. (Doc. 435) at 19.) Plaintiff supports this position with a comprehensive list of the alterations Duke is alleged to have made to each unit. (See Pl.'s Supplemental Mem. in Supp. of Mot. for Summ. J. ("Pl.'s Suppl. Mem.") (Doc. 454) at 5-22.) These alterations include, for example, repairs and upgrades to unit

boilers, repair or replacement of turbine rotors, reinsulation of generator rotors, replacement of unit control systems, and replacement of feedwater heaters. (See, e.g., id. at 8-10 (describing the changes made at Allen Units 1 and 2).)

Plaintiff also argues that the similarities in length ("years" for most Duke units; nine months each for WEPCo's), purpose ("life extension for old plants as a substitute for building new ones"), and frequency ("once-in-a-lifetime comprehensive renovations") between Duke's PMP and WEPCo's life extension project call for summary judgment in Plaintiff's favor. (Pl.'s Br. (Doc. 435) at 19-21.) Finally, Plaintiff argues that the "\$17 to . . . \$30 million per unit" cost was "equal to or more than the original cost of constructing the units[,]" (id. at 21), and notes that Duke "treated [the PMP] for accounting purposes the same as building a new plant." (Id. at 21-22 (citing Sept. 9, 1988 Memo from Don R. Clay (EPA) to David A. Kee (EPA), Ex. 26 (Doc. 435-27) at 7)). See also Cinergy Corp., 495 F. Supp. 2d at 922 (noting that the manner in which a utility treats project expenses for tax purposes is relevant to the RMRR determination); United States v. Ohio Edison Co., 276 F. Supp. 2d 829, 834 (S.D. Ohio 2003) (same)).

Duke, however, disputes Plaintiff's characterization of the PMP and the conclusions drawn from it. Duke argues that not all

of the changes made to its units while they were in PMP are covered by the PMP umbrella, because "the repairs and replacements at each unit were separate projects with separate justifications." (Duke's Supplemental Br. ("Duke's Suppl. Br.") (Doc. 453) at 18-19.) As this court understands Duke's argument, Plaintiff's allegedly improper aggregation of the work results in exaggerated estimates of the PMP's scope, duration, and cost. (See generally id. at 19-26.)

For example, Plaintiff's description of Duke's work at Allen Unit 1 reads as follows:

Duke spent five months, from January to May 1985, on an "upgrade and reliability study" at the Allen plant. As with the studies at all the plants, an extensive team was appointed to determine the refurbishments, upgrades, and design changes necessary for life extension. Afterwards, Duke told the NCUC that to return to service, Allen 1's "boiler has to be modified and upgraded in several areas" and that it needed new feedwater heaters, repair or replacement of turbine rotors, and re insulation of a generator rotor. Duke budgeted \$21,670,000 for a major renovation, including new feedwater heaters (requiring 178 installation days), turbine repairs (56 days), generator re insulation (180 days), a new unit control system (180 days), and over 20 other items. By 1989, the work had expanded to include another \$3,673,000 for boiler repairs.

Duke ultimately replaced both sections of the unit's massive reheater (comprising 370 tubes in assemblies more than 20 feet tall), the unit's four 43-foot tall burner corner panels, and other portions of the boiler, including 6,400 feet of bottom ash hopper tubes. Duke also replaced the unit's inefficient control system, which was unable to meet modern requirements, the ignition system, and five

feedwater heaters (each over 30 feet long). The Allen 1 outage lasted over six years, until August 1990. The final cost of the 1990 Allen 1 PMP was \$23,619,349 or \$143 per kilowatt. The original cost in 1957 to build the 165 MW unit was \$18 million.

(Pl.'s Suppl. Mem. (Doc. 454) at 8-9 (footnote omitted)

(internal citations omitted).)

Duke's expert, on the other hand, separates the work done at Allen Unit 1 into two parts: boiler and reheater repair, and other "maintenance, repair and/or replacement activities" related to non-boiler items, each with its own invoice. (See Duke's Resp., Ex. 63, Expert Report of William H. Tuppeny, Jr. ("Tuppeny Report") (Doc. 438-4) at 20-21.) In addition, whereas Plaintiff simply notes that "[t]he Allen 1 outage lasted over [the] six years" the plant was in ECS, from 1984 to 1990 (Pl.'s Suppl. Mem. (Doc. 454) at 9), Duke's expert does not indicate that work began on the unit until after a 1987 report outlining the full scope of the problems with the boiler reheater.

(Tuppeny Report (Doc. 438-4) at 20.) Moreover, Duke's expert states that the boiler repairs "were consolidated . . . to allow the implementation of these various tasks to take place over an extended time period[, which] permitted Duke to utilize their in-house engineering, project management, and maintenance resources in an optimum fashion" (Id.; see also Duke's Supplemental Reply Br. ("Duke's Suppl. Reply") (Doc. 456) at 12

("ECS allowed Duke's maintenance crews to work on the PMP units in 'off-peak' times, when they were not needed to work elsewhere on operating units within the system. This 'levelized' approach to the schedule meant that the work might go on for months in PMP, whereas Duke would normally have done it during a turbine outage in only two to three weeks." (internal citations omitted)).) In other words, Duke argues that the prior placement of the units into ECS resulted in an artificially lengthy PMP duration, because Duke's crews were not facing a deadline to return the units to active service. (See Duke's Suppl. Reply (Doc. 456) at 12 (noting that "the outage length was a function of system demand, not a function of the work performed").) Duke makes the same argument with respect to the scope of the work performed, noting that Duke used the ECS period "to work on components that had failed (corrective maintenance) as well as components that were expected to fail in the future (predictive maintenance)." (Id. at 13 (citing Deposition of Willis Joseph, Ex. 142 (Doc. 456-4) at 182-84).)

Plaintiff and Duke engage in the same sort of disagreements for each of the PMP units at issue. Taking the evidence in the light most favorable to Duke, this court finds that Duke has indeed shown that there are genuine disputes as to the nature, extent, purpose, frequency, and cost of the work done at each

unit. For this reason, the court will deny Plaintiff's motion for summary judgment on the issue of physical change.

B. Operational Change

Plaintiff argues that "each PMP unit underwent an operational 'change' when it was renovated and moved from a lengthy non-operational status to one in which it became fully operational." (Pl.'s Br. (Doc. 435) at 8-9.) Duke retorts (1) that Plaintiff waived this argument by not giving any notice to Duke that an operational change was the basis for the suit, and (2) that the operational change argument fails on its merits regardless of whether it was timely raised. (Duke's Resp. (Doc. 438) at 32-35.)

1. Plaintiff Provided Adequate Notice

The success of Duke's "notice" argument depends on whether Plaintiff initiated this litigation with a Notice of Violation ("NOV") that included "operational change" as a basis for the lawsuit. The CAA prohibits the EPA from bringing a civil enforcement action against any entity without first providing notification that the entity has violated some part of the CAA. See 42 U.S.C. § 7413(a)(1). While Duke is correct that the EPA can base its lawsuit "only on the basis of the specific violation alleged in the NOV[,]" United States v. AM General Corp., 808 F. Supp. 1353, 1362 (N.D. Ind. 1992), aff'd, 34 F.3d

472 (7th Cir. 1994)⁴, courts "generally view the sufficiency of a NOV liberally." Id.; see United States v. BP Exploration & Oil Co., 167 F. Supp. 2d 1045, 1050-51 (N.D. Ind. 2001) ("Indeed, the CAA does not even specify the form which the notice must take. Rather than formal written notice, actual notice of violations is sufficient." (citation omitted)); United States v. Chevron U.S.A., Inc., 380 F. Supp. 2d 1104, 1110 (N.D. Cal. 2005) ("[T]he notice requirement is not intended to be construed in a way that would make EPA enforcement more difficult.").

Here, the EPA's NOV states that "Duke has embarked on a program of modifications intended to extend the useful life and/or regain lost generating capacity at their coal-fired power plants" and asserts that "Duke has modified and operated the coal-fired power plants identified below without obtaining [the required] permits" (Duke's Resp., Ex. 84, Notice of Violation (Doc. 438-25) at 3 (emphasis added).) While the NOV primarily emphasizes "physical modifications" (id.), the CAA defines "modification" as either a physical or operational

⁴ See also United States v. Pan Am. Grain Mfg Co., 29 F. Supp. 2d 53 (D.P.R. 1998) (dismissing claims regarding two facilities not identified by the NOV); United States v. Louisiana-Pacific Corp., 682 F. Supp. 1122, 1128 (D. Col. 1987) ("[T]o allow the EPA to notify the alleged offender of one violation, and then bring a civil action on the basis [of] another violation . . . would completely frustrate the notice requirement created by Congress.").

change, as discussed above. Construing the NOV liberally, this court finds that the use of the term “modification” provided adequate notice to Duke that the alleged violations could be based on either physical or operational changes.

2. Merits

Demonstrating that the operational change argument was timely raised is only one of Plaintiff’s obligations. To meet its summary judgment burden, Plaintiff must also show that there is no genuine dispute that Duke’s shutdown and subsequent restart of its plants constituted an operational change per the PSD regulations.

Plaintiff argues that both “the plain language of the regulations and long-standing EPA guidance” support its conclusion that restarting a “long-idled power plant” is an operational change that triggers PSD permitting requirements. (Pl.’s Br. (Doc. 435) at 24-25.) This court is unconvinced that such a broad conclusion can be drawn from past EPA determinations, particularly the ones Plaintiff cites in its motion; regardless, this court finds that the current factual record is insufficient for the court to decide this point at the summary judgment stage.

As with the term “physical change,” the regulations define the term “operational change” in the negative, listing only a

number of exceptions that do not trigger the permitting requirement. One such exception is the "mere increase in the hours" exception, which states that "a mere increase in the hours of operation, standing alone, is not a 'physical change or change in the method of operation.'" Env'tl. Def. v. Duke Energy Corp. ("Duke III"), 549 U.S. 561, 579 (2007) (citing 40 C.F.R. § 51.166(b) (2) (iii)).⁵ The purpose of this exception is to protect utilities from "undue disruption by allowing routine increases in production during the normal course of business in order to respond to market conditions." (See Pl.'s Br., Ex. 35, In re Monroe Elec. Generating Plant ("Monroe Electric"),

⁵ In support of its argument that the exception applies, Duke invokes the "applicability determination issued by the NC DENR [North Carolina Department of Energy and Natural Resources], which confirmed that temporary shutdown and restart of the units would not trigger PSD." (Duke's Resp. (Doc. 438) at 34 (citing Duke's Aug. 17, 1983 Letter from Ronald V. Shearin, Duke's Assistant General Counsel, to Robert F. Helms, Director of NC DENR, Ex. 3 (Doc. 425-4) and NC DENR's Sept. 15, 1983 Letter to Ronald V. Shearin, Duke's Assistant General Counsel, Ex. 5 (Doc. 425-6)).) However, this court has already concluded that Duke's letters to NC DENR failed to appropriately describe the scope of the work Duke planned to perform on the offline units under the PMP. (See Nov. 6 Mem. Op. (Doc. 462) at 31.) Duke's failure to notify NC DENR of the PMP is fatal to its argument that NC DENR made a controlling determination regarding the impact of the regulations on Duke's obligation to obtain a permit. (See id.) And, even "[a]ssuming arguendo that NC DENR did render some type of interpretation[,]" (id. at 36), "this court finds that EPA's interpretation of SIP regulations controls when it conflicts with NC DENR's interpretation, particularly when, as here, the state SIP adopts the relevant federal regulation without additional explanation, modification, or change." (Id. at 46-47.)

Petition No. 6-99-2 (June 11, 1999) (Doc. 435-36) at 13.) The exception does not mean, however, "that increases in operating hours . . . must be ignored even if caused or enabled by an independent 'physical change . . . or change in the method of operation.'" Duke III, 549 U.S. at 579 (citing 40 C.F.R. § 51.166(b) (2) (iii)); see also Cinergy Corp., 458 F.3d at 708 ("[M]erely running the plant closer to its maximum capacity is not a major modification because it does not involve either a physical change or a change in the method of operation. If, however, a physical change enables the plant to increase its output, then, according to the EPA's interpretation, the exclusion for merely operating the plant for longer hours is inapplicable."); cf. Sept. 9, 1988 Memo from Don R. Clay (EPA) to David A. Kee (EPA), Ex. 26 (Doc. 435-27) at 8 ("[T]he exclusion for increases in hours of operation or production rate does not take the project beyond the reach of PSD coverage if those increases do not stand alone but rather are associated with non-excluded physical or operational changes.").

In other words, an increase in hours that would otherwise fall within the exception might be construed as a change in the method of operation if it is enabled by or otherwise connected to a physical change. This court has already determined that a trial is necessary to determine the scope of the physical

improvements and maintenance performed at each PMP unit. See supra Part IV.A. For the same reasons, this court will deny Plaintiff's motion for summary judgment on the question of whether the units' shutdown and subsequent restart constituted an operational change.

The two agency determinations Plaintiff cites in support of its position - Cyprus Casa Grande and In re Monroe Electric - do not require a contrary ruling, although certain aspects of the determinations support Plaintiff's position. In Cyprus Casa Grande, for instance, the EPA determined that a power company could not apply the "increase in hours" exclusion to a unit that had been in "non-operating condition" with "no environmental impact" and "zero emissions for ten years." (Pl.'s Br., Ex. 32, Casa Grande Determination ("Casa Grande") (Doc. 435-33) at 8.) In the abstract, this characterization might fit several of Duke's units. However, the Casa Grande determination also emphasized several specific factors not present in Duke's case: Unlike the utility in Casa Grande, for instance, Duke preserved all operating permits for each plant for the duration of the ECS and PMP and maintained the PMP units in the state's emissions inventory. (See id. at 7-8; Ex. 19, Aug. 17, 1983 Letter from Ronald V. Shearin, Duke's Assistant General Counsel, to Robert F. Helms, Director of NC DENR (Doc. 435-20) at 2-3.) The

Casa Grande determination is unclear as to the relative weight a court should assign to each of these facts.

Monroe Electric, in which the EPA determined that the restart of a power plant after eleven years of Extended Reserve Shutdown ("ERS") constituted an operational change, is similarly unpersuasive at this stage of the proceedings. In deciding that the "increase in hours" exception did not apply, the EPA emphasized that the plant was leaving its previous "non-operational" and "unmanned" condition to become "fully operational." (Pl.'s Br., Ex. 35, Monroe Electric (Doc. 435-36) at 22.) The EPA also concluded that "the decision to operate after eleven years of shutdown, while certainly motivated by changes in the marketplace, [was] not the kind of quick decision to respond to quick market fluctuations that EPA intended [the 'increase in hours' exception to cover]."(Id. at 23.)

Again, however, the EPA referenced several other circumstances not present in Duke's case. For instance, although the utility "maintained relevant environmental permits for the Monroe plant[,]" (id. at 6), the restart also required the utility to purchase or update several permits, something Duke is not alleged to have done. (Id. at 23.) Additionally, the EPA specifically noted that the State of Louisiana - where the units were located - had "treated the plant as having no

environmental impact" in its emissions inventory. (*Id.* at 24.) Relatedly, Louisiana had recently reported to the national Ozone Transport Assessment Group ("OTAG") that it would have no impact on the relevant ozone emissions levels - a conclusion on which OTAG relied in determining whether Louisiana should update its environmental regulations. (*Id.* at 24-25.) Had the Monroe plants been included in the survey, Louisiana would have had to report a different level of ozone emissions and OTAG's conclusion may have been different. (*Id.* at 24.) Because a restart would therefore have "disturb[ed] a prior assessment of a source's environmental impact" at both the state and national level, the court confirmed its finding of operational change. (*Id.*)

This court realizes that it will have to determine the controlling law regarding operational change before trial, and that this determination will require thorough analysis of the Casa Grande and Monroe Electric decisions, as well as others. However, a brief survey of these two determinations makes it clear that, however this court frames the legal standard, the proper application of the law will depend on nuanced findings of fact which this court cannot make on the current record. Therefore, this court reaffirms that Plaintiff's motion for

summary judgment will be denied as to the question of operational change, and the issue will be decided at trial.

V. SIGNIFICANT NET EMISSIONS INCREASE

The second prong of the regulatory definition of "modification" is a "significant net emissions increase" resulting from the physical or operational change. 40 C.F.R. § 51.166(b) (2) (i). The regulations define "net emissions increase" as:

[T]he amount by which the sum of the following exceeds zero:

(a) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(b) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

40 C.F.R. § 51.166(b) (3) (i); see also Duke III, 549 U.S. at 569; Duke IV, 2010 WL 3023517, at *4.

A net emissions increase is "significant" if it "equal[s] or exceed[s]" the stated regulatory emissions rates for the pollutant at issue. 40 C.F.R. § 51.166(b) (23) (i).

A. Determining a Significant Net Emissions Increase

As previously explained in this court's earlier Memorandum Opinion, this court must use an "actual-to-projected-actual" test to determine what Duke should have known regarding its plants' emissions.⁶ (Nov. 6, 2013 Mem. Op. (Doc. 462) at 27.) The first step in this test is to calculate the plants' pre-PMP "actual emissions" to establish the baseline with which to compare projected post-PMP emissions. The regulations define "actual emissions" as:

[T]he average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority may allow the use of a different time period upon a determination that it is more representative of normal source operation.

⁶ The PSD regulations "require[] a utility to obtain a pre-construction permit when proposed changes 'would increase the actual annual emission of a pollutant above the actual average for the two prior years.'" Duke IV, 2010 WL 3023517, at *5 (citing Duke III, 549 U.S. at 570). Utilities cannot generally employ a "wait-and-see" approach; instead, they are required "to make a pre-project projection of what actual emissions will be before construction begins." Id. (emphasis added) (citing United States v. Ohio Edison Co., 276 F. Supp. 2d 829, 865 (S.D. Ohio 2003)). Therefore, the question is not whether Duke's plants actually had increased emissions after restart, but whether Duke should have expected its plants to have increased emissions after restart. If so, Duke should have sought a pre-project permit before implementing the PMP and restarting its plants. (See Nov. 6, 2013 Mem. Op. (Doc. 462) at 27 (citing Duke IV, 2010 WL 3023517, at *5).)

40 C.F.R. 51.166(b) (21) (ii) .

In this case, Plaintiff has repeatedly argued that the PSD regulations "require that the emissions baseline for long-shutdown sources of pollution . . . be based on actual emissions in the two years prior to being restarted - zero." (Pl.'s Br. (Doc. 435) at 26-27.) Essentially, Plaintiff argues, ECS status transforms "normal source operation" into "non-operation" for emissions baseline purposes. (See id. at 31.) Duke disagrees with this interpretation, arguing that the correct two-year period is the two years prior to any unit shutdown. (See Duke's Br. in Supp. of Mot. in Limine (Doc. 425) at 54; Duke's Resp. (Doc. 438) at 20-21; Duke's Consolidated Reply in Supp. of Mot. for Summ. J. (Doc. 440) at 26.)

This court has previously discussed the propriety of Plaintiff's zero-baseline argument in the context of Plaintiff's proposed PROMOD expert testimony, which uses a baseline of zero emissions. (See generally Nov. 6 Mem. Op. (Doc. 462).) That discussion resulted in three conclusions: first, that NC DENR did not make a formal determination that Duke's interpretation of the regulations is correct (id. at 35-36); second, that even if NC DENR had made a formal determination, Plaintiff's conflicting interpretation would control (id. at 46-47); and third, that Plaintiff's interpretation was entitled to deference

(id. at 67). Now, this court must resolve a fourth issue: Whether a baseline of zero emissions, as the starting point for the "actual-to-potential-actual" test, applies as a matter of law as to each plant. This court finds that it does.

B. Baseline Emissions were Zero for Each PMP Unit

As described in this court's previous Memorandum Opinion, the case history demonstrates that Plaintiff has exercised its discretion to use a two-year period other than the two years immediately prior to restart only in limited circumstances. (Nov. 6, 2013 Mem. Op. (Doc. 462) at 66-67.) Those circumstances include, for example, "a strike, major industrial accident, or other catastrophic occurrence that reduced capacity or, perhaps, some catastrophe that required a plant temporarily to increase production of a needed product to an extraordinary degree."⁷ United States v. Westvaco Corp., Civil Action No. MJG-00-2602, 2010 WL 4068745, at *3 (D. Md. Sept. 1, 2010) (unpublished); see also Pl.'s Br., Ex. 44, Casa Grande (Doc. 435-45) at 9 ("In general, EPA has indicated that [the]

⁷ In WEPCo, for example, the EPA used a different two-year period to measure actual emissions because "the discovery of cracks in the rear steam drums led to a more recent 'source curtailment[.]"' WEPCo, 893 F.2d at 916. To the extent WEPCo supports a more general rule that Plaintiff should look to a different two-year period when non-routine maintenance is at issue, Duke's insistence that the PMP falls under the RMRR exception undercuts the applicability of such a rule in this case.

provision [allowing an alternate baseline] is to apply to catastrophic occurrences such as strikes and major industrial accidents."). Although Duke argues for application of a different two-year period, no such period has been announced by EPA, NC DENR, or indeed any court with the opportunity to review these thirteen units.

For those units out of service for approximately ten years – that is, Buck Unit 3, Buck Unit 4, Cliffside Unit 1, and Cliffside Unit 2 – this court finds Casa Grande to be the controlling determination. The Casa Grande units were out of service for approximately ten years, and the EPA Air Management Director David P. Howekamp concluded in his determination "that this period is representative of normal source operations, since emissions have been zero during each of the last ten years while the plant has been shut down." (Pl.'s Br., Ex. 32, Casa Grande (Doc. 435-33) at 9; see also Ex. 35, Monroe Electric (Doc. 435-36) at 26 (holding that a zero emissions baseline was "representative of normal source operations at the Monroe plant, which has had no emissions for the last eleven years").) Applying Casa Grande, this court finds a baseline of zero

emissions as a matter of law for Buck Unit 3, Buck Unit 4, Cliffside Unit 1, and Cliffside Unit 2.⁸

On the other end of the spectrum are Riverbend Unit 4 and Dan Unit 3, each of which was placed in ECS for approximately three years. In the middle are Allen Units 1 and 2, Buck Unit 5, Cliffside Units 3 and 4, and Riverbend Units 6 and 7, each of which was shut down for somewhere between five and seven years. This court finds no reason why the presumption of using the two-year period immediately prior to restart should not apply to these units as a matter of law. WEPCo, in which the EPA used an alternate two-year period to calculate actual emissions for units repaired as part of a four-year program, potentially suggests a different conclusion; however, each of the WEPCo units was only out of service for nine months at a time, WEPCO, 893 F.2d at 908, and the court emphasized the fact that the deterioration had prevented each unit from operating at full capacity for a number of years. Id. at 905-06. Here, Duke has

⁸ It should be noted that the Casa Grande determination also considered the fact that the units at issue had only been operating for one year prior to the ten-year shutdown. (Pl.'s Br., Ex. 32, Casa Grande (Doc. 435-33) at 9.) Admittedly, the Duke units' 40-plus-year operational history is much longer, which makes Casa Grande less applicable than it otherwise could be. Nevertheless, the ratio of non-operational history to operational history was not the primary rationale for Casa Grande's conclusion, and this court does not find Duke's situation sufficiently distinguishable to warrant the use of a different two-year baseline.

never suggested that it placed its units in ECS because of mechanical problems; on the contrary, Duke argues that it "placed the units in ECS for lack of demand, not because they were 'inoperable.'" (See Duke's Resp. (Doc. 438) at 24; Pl.'s Br., Ex. 19, Aug. 17, 1983 Letter from Ronald V. Shearin, Duke's Assistant General Counsel, to Robert F. Helms, Director of NC DENR (Doc. 435-20) at 2 (explaining that Duke decided to place its units in ECS because "recent load growth [was] less than previously anticipated" and Duke would therefore "not need for several years some of our older coal-fired units") .)

Because WEPCo is inapposite to this case on the question of the proper two-year baseline period, and because there is no other reason to deviate from the default rule that the two years immediately preceding restart should be used, this court finds that a zero-emissions baseline applies to each of Duke's units.

C. Because of the Zero-Emissions Baseline, a Significant Net Emissions Increase can be Inferred

Having determined that a zero-emissions baseline applies as a matter of law to each of Duke's plants, the next step in the analysis is to determine whether Duke should have anticipated that restart would result in a significant net emissions increase. As discussed supra, a "net emissions increase" is defined as "any increase in actual emissions from a physical change or a change in the method of operation at a stationary

source." 40 C.F.R. § 51.166(b)(3)(i)(a). Since this court has established that each unit had a zero-emissions baseline as a matter of law, any post-restart emissions constituted a net emissions increase. The next question, therefore, is whether those emissions were "significant" within the meaning of the regulations.

The PSD regulations define "significant" as an increase in the "rate of emissions that would equal or exceed" a number of given rates for various pollutants. 40 C.F.R. § 51.166(b)(23)(i). The two pollutants at issue here are sulfur dioxide and nitrogen oxides, which are both capped at 40 tons per year. Id.; see also Pl.'s Br. (Doc. 435) at 25 ("There is no question that each PMP unit's actual post-change emissions of sulfur dioxide and nitrogen oxides far exceeded 40 tons per year").

Duke, for its part, does not dispute Plaintiff's contention that there has been a significant net emissions increase. Indeed, Duke's own expert finds projected sulfur dioxide and nitrogen oxide emissions far in excess of 40 tons per year for each of the PMP units. (See Pl.'s Br., Ex. 3, Expert Report of Frank C. Graves ("Graves Rep.") (Doc. 435-4) at 10-41 (reporting summaries of projected emissions for each unit).) Duke's response to Plaintiff's summary judgment motion focuses exclusively on the propriety of Plaintiff's zero-emissions

baseline argument and does not contradict Mr. Graves' findings. (See generally Duke's Resp. (Doc. 438).) Based on this evidence and applying the zero-emissions baseline, this court finds that there is no dispute that Duke's units emitted pollutants in excess of the PSD thresholds upon restart. Therefore, summary judgment in favor of Plaintiff is appropriate on this point.

D. Plaintiff has not met its Burden to show Causation

The final element Plaintiff must prove is a causal connection between the physical or operational change and the significant net emissions increase. (See, e.g., Pl.'s Br., Ex. 35, Monroe Electric (Doc. 435-36) at 14-15 ("Once restart is found to . . . involve either a physical change or a change in the method of operation, the [court] must determine if the change results in a significant net emissions increase of a pollutant subject to regulation under the Act.") (citing 40 C.F.R. § 51.166(b)(2)(i)). This court has already considered the question of causation in the context of Duke's motion in limine to exclude Plaintiff's PROMOD testimony, (see Nov. 6, 2013 Mem. Op. (Doc. 462) at 19-26), and determined that "both parties' arguments depend upon a disputed issue of fact as to the operability or inoperability of the plants prior to the PMP" (Id. at 23.) This factual dispute directly impacts the court's analysis with respect to the causation

question here: e.g., "If the units were operable, the Government will have much greater difficulty demonstrating how much, if any, of an emissions increase was caused by the PMP." (Id. at 23.) If the units were inoperable, on the other hand, Plaintiff may be able to show causation via simple logical inference.

At minimum, this court finds that Duke has submitted enough evidence to create a genuine dispute as to whether its plants were operable prior to being placed in ECS. (See Duke's Br. in Supp. of Mot. in Limine, Ex. 27, Expert Report of Frank C. Graves (Doc. 428-10) at 14 ("The plants chosen for ECS were still operationally viable, but their economics had become unfavorable relative to the newer plants."); id. at 19 (asserting that any projected increases in emissions are attributable to independent factors only, and not to repairs); see also Duke's Suppl. Br. (Doc. 453) at 17 ("Not only did the PMP units in fact generate substantial power before ECS, they had substantial 'headroom' - i.e., prior to ECS they were available much more than they were called upon to generate." (internal citations omitted))). Because there is a genuine dispute over the plants' operability and, therefore, a dispute as to the portion of the units' post-PMP emissions attributable to the PMP, this court will deny Plaintiff's motion for summary judgment as to causation.

VI. CONCLUSION

For the foregoing reasons, this court hereby **GRANTS IN PART** and **DENIES IN PART** Plaintiff's motion for summary judgment (Doc. 434). The motion is **GRANTED** to the extent that there is no genuine dispute that the restart of Duke's units resulted in a significant net emissions increase. The motion is **DENIED** to the extent that there are genuine disputes as to the question of whether Duke made a physical or operational change to its units, and whether such a change caused the subsequent significant net emissions increase.

This the 17th day of March, 2014.

William L. Osteen, Jr.

United States District Judge